

---

# PROTOPLASMA

---

Edited by / Herausgegeben von

G. B. Bouck, Chicago, Ill.

T. W. Goodwin, Liverpool

O. Kiermayer, Salzburg

K. R. Porter, Boulder, Colo.

J. Reinert, Berlin

E. Schnepf, Heidelberg

---

Vol. 90, 1976

407 Figures/Abbildungen



Springer-Verlag Wien · New York

# Protoplasma

## Editorial Advisory Board / Fachbeirat

H. J. Arnott, Arlington, Texas	G. F. Leedale, Leeds
D. Branton, Cambridge, Mass.	H. Moor, Zürich
H. Clauss, Berlin	D. J. Morré, West Lafayette, Ind.
E. C. Cocking, Nottingham	K. Mühlethaler, Zürich
F. D'Amato, Pisa	W. Nagl, Kaiserslautern
F. Duspiva, Heidelberg	E. H. Newcomb, Madison, Wis.
W. W. Franke, Heidelberg	H. Northcote, Cambridge
P. K. Hepler, Stanford, Calif.	A. W. Robards, Heslington, York
R. G. Herrmann, Düsseldorf	H. G. Schweiger, Wilhelmshaven
J. Heslop-Harrison, Richmond	A. Sievers, Bonn
J. K. Heyes, Wellington	H. E. Street, Leicester
H. W. Israel, Ithaca, N.Y.	H. Swift, Chicago, Ill.
N. Kamiya, Osaka	W. W. Thomson, Riverside, Calif.
H. Kinzel, Wien	W. Vogell, Konstanz
R. Kollmann, Kiel	M. M. Yeoman, Edinburgh

The exclusive copyright for all languages and countries, including the right for photomechanical and any other reproductions including microform is transferred to the publisher.

Alle Rechte, einschließlich das der Übersetzung in fremde Sprachen und das der photomechanischen Wiedergabe oder einer sonstigen Vervielfältigung, auch in Mikroform, vorbehalten.

© 1976 by Springer-Verlag / Wien

---

## Contents / Inhalt

### *Original Papers / Abhandlungen*

Allen, E. D.: Development of Crystalline Inclusions ("Ergosterol Crystals") in <i>Neurospora crassa</i> (With 12 Figures) . . . . .	297
Arbolit, D., s. Rascio, N. . . . .	253
Barlow, P. W.: The Relationship of the Dispersion Phase of Chromocentric Nuclei in the Mitotic Cycle to DNA Synthesis (With 6 Figures) . . . . .	381

Bland, Ch. E., s. Lunney, Carol . . . . .	119
Bowes, B. G., and J. G. Torrey: Ultrastructural Changes in Cells of Pea Root Cortical Explants Cultured <i>In Vitro</i> (With 30 Figures) . . . . .	99
Breazeale, V., s. Esau, K. . . . .	189
Breidenbach, R. W., s. Ilker, Reinfriede . . . . .	229
Brown, D. L., G. G. Leppard, and A. Massalski: Fine Structure of Encystment of the Quadriflagellate Alga, <i>Polytomella agilis</i> (With 17 Figures) . . . . .	139
Brown, D. L., A. Massalski, and G. G. Leppard: Fine Structure of Excystment of the Quadriflagellate Alga, <i>Polytomella agilis</i> (With 15 Figures) . . . . .	155
Chescoe, D., s. Steveninck, R. F. M. van . . . . .	89
Crawford, R. M., s. Neville, A. C. . . . .	307
Cummins, W. R., s. Robinson, D. G. . . . .	369
Davey, M. R., s. Keresztes, A. . . . .	1
Esau, K., A. C. Magyarosy, and V. Breazeale: Studies of the Mycoplasma-Like Organ- ism (MLO) in Spinach Leaves Affected by the Aster Yellows Disease (With 22 Figures) . . . . .	189
Fraser, T. W.: Mop-Top Tubules. The Ultrastructure of Unusual Tubular Elements Associated with Two Different Leaf Symptoms of Potato Mop-Top Virus Infected Potato Plants (With 23 Figures) . . . . .	15
Gubb, D. C., s. Neville, A. C. . . . .	307
Gull, K., and R. J. Newsam: Meiosis in the Basidiomycetous Fungus, <i>Coprinus atramentarius</i> (With 19 Figures) . . . . .	343
Hacclus, B., und G. Hausner: Ein transplantierbarer embryogener Callus aus Nucellusgewebe von <i>Cynanchum vincetoxicum</i> und die Rolle globulärer Vor- stadien in der Entwicklungsgeschichte nicht-zygotischer Embryonen (Mit 4 Ab- bildungen) / A Transplantable Embryogenic Callus from Nucellar Tissue of <i>Cynanchum vincetoxicum</i> and the Significance of a Globular Proembryonal Cell Complex in the Non-Zygotic Embryo Development . . . . .	265
Hall, T. A., s. Steveninck, M. E. van . . . . .	47
Hausner, G., s. Hacclus, B. . . . .	265
Hüsemann, W., und J. Reinert: Steuerung des Wachstums und der Morphogenese von Zellkulturen aus <i>Crepis capillaris</i> durch Licht und Phytohormone (Mit 4 Ab- bildungen) / Regulation of Growth and Morphogenesis in Cell Cultures of <i>Crepis capillaris</i> by Light and Phytohormones . . . . .	353
Ilker, Reinfriede, A. J. Waring, J. M. Lyons, and R. W. Breidenbach: The Cyto- logical Responses of Tomato-Seedling Cotyledons to Chilling and the Influence of Membrane Modifications Upon these Responses (With 22 Figures) . . . . .	229
Kayser-Wegmann, Inge: Ultrastructural Differences Between Larval and Pupal Cuticles of <i>Pieris brassicae</i> (Lepidoptera) (With 12 Figures) . . . . .	319
Keresztes, A., M. R. Davey, and F. Lang: Freeze-Etched Membrane Faces and Photosynthetic Activity in Normal and Mutant <i>Tradescantia</i> Chloroplasts (With 10 Figures) . . . . .	1
Lang, F., s. Keresztes, A. . . . .	1
Lange, Lene, and L. W. Olson: The Zoospore of <i>Olpidium brassicae</i> (With 14 Figures) . . . . .	33
Leppard, G. G., s. Brown, D. L. . . . .	139, 155
Lunney, Carol, and Ch. E. Bland: Ultrastructural Observations of Mature and Encysting Zoospores of <i>Pythium proliferum</i> de Bary (With 42 Figures) . . . . .	119
Lyons, J. M., s. Ilker, Reinfriede . . . . .	229
Magyarosy, A. C., s. Esau, K. . . . .	189
Massalski, A., s. Brown, D. L. . . . .	139, 155
Neville, A. C., D. C. Gubb, and R. M. Crawford: A New Model for Cellulose Archi- tecture in Some Plant Cell Walls (With 9 Figures) . . . . .	307
Newsam, R. J., s. Gull, K. . . . .	343
Olson, L. W., s. Lange, Lene . . . . .	33
Orsenigo, M., s. Rascio, N. . . . .	253

#### IV Contents / Inhalt

<b>Pellegrini, Lillane:</b> Variations ultrastructurales de l'appareil de Golgi chez la <i>Cystoseira stricta</i> Sauvageau (Pheophycée, Fucale) (Avec 27 Figures) / Ultrastructural Changes on the Golgi Complex in Vegetative Apex Cells of <i>Cystoseira stricta</i> Sauvageau (Phaeophyceae, Fucales) . . . . .	205
<b>Peters, P. D., s. Steveninck, M. E. van</b> . . . . .	47
<b>Rascio, N., M. Orsenigo, and D. Arboit:</b> Prolamellar Body Transformation with Increasing Cell Age in the Maize Leaf (With 11 Figures) . . . . .	253
<b>Reinert, J., s. Husemann, W.</b> . . . . .	353
<b>Robinson, D. G., and W. R. Cummins:</b> Golgi Apparatus Secretion in Plasmolyzed <i>Pisum sativum</i> L. (With 5 Figures) . . . . .	369
<b>Sallé, G.:</b> Étude cytologique et cytochimique de l'extrémité des cordons corticaux du <i>Viscum album</i> . Mise en évidence d'une sécrétion mucilagineuse (Avec 15 Figures) / Cytological and Cytochemical Study of the Cortical Strands of <i>Viscum album</i> L. (Loranthaceae). Evidence for a Mucilaginous Secretion . . . . .	283
<b>Sigee, D. C.:</b> Structure and Function in the Ligule of <i>Selaginella kraussiana</i> . 3. The Uptake of Tritiated Glucose (With 4 Figures) . . . . .	333
<b>Steveninck, M. E. van, R. F. M. van Steveninck, P. D. Peters, and T. A. Hall:</b> X-ray Microanalysis of Antimonate Precipitates in Barley Roots (With 10 Figures) . . . . .	47
<b>Steveninck, M. E. van, s. Steveninck, R. F. M. van</b> . . . . .	89
<b>Steveninck, R. F. M. van, s. Steveninck, M. E. van</b> . . . . .	47
<b>Steveninck, R. F. M. van, M. E. van Steveninck, and D. Chescoe:</b> Intracellular Binding of Lanthanum in Root Tips of Barley ( <i>Hordeum vulgare</i> ) (With 6 Figures) . . . . .	89
<b>Torrey, J. G., s. Bowes, B. G.</b> . . . . .	99
<b>Valk, P. van der, and J. G. H. Wessels:</b> Ultrastructure and Localization of Wall Polymers during Regeneration and Reversion of Protoplasts of <i>Schizophyllum commune</i> (With 47 Figures) . . . . .	65
<b>Waring, A. J., s. Ilker, Reinfriede</b> . . . . .	229
<b>Wessels, J. G. H., s. Valk, P. van der</b> . . . . .	47
 <i>Brief Reports / Kurze Mitteilungen</i>	
<b>Bechtel, D. B.:</b> Nuclear Degeneration in the Myxomycete <i>Physarella oblonga</i> (With 13 Figures) . . . . .	179
<b>Duncan, E. J., and E. Heberle:</b> Effect of Temperature Shock on Nuclear Phenomena in Microspores of <i>Nicotiana tabacum</i> and Consequently on Plantlet Production . . . . .	173
<b>Heberle, E., s. Duncan, E. J.</b> . . . . .	173
<b>Hughes, B. G., F. G. White, and M. A. Smith:</b> Scanning Electron Microscopy of Barley Protoplasts (With 8 Figures) . . . . .	399
<b>Opas, M., and R. Rinaldi:</b> $Ca^{++}$ Controlled Contraction-Relaxation Cycle in Glycerinated Amoeboid Cells . . . . .	393
<b>Rinaldi, R., s. Opas, M.</b> . . . . .	393
<b>Smith, M. A., s. Hughes, B. G.</b> . . . . .	399
<b>White, F. G., s. Hughes, B. G.</b> . . . . .	399

Listed in Current Contents

